

### Abstract

Self testing of a data communication system that includes a presettable scrambler and a complementary presettable descrambler is performed by presetting the presettable scrambler to a preset state. A seed payload field is 5 scrambled using the presettable scrambler to generate fields of a test sequence. The fields of the test sequence are transmitted and corresponding received test sequence fields are received. The received test sequence fields are descrambled using the presettable descrambler to generate respective recovered test sequence fields. Differences between the recovered test sequence fields and the 10 seed payload field are then detected as errors. A data communication system having a built-in self-test facility comprises a seed payload field source, a presettable scrambler, a presettable descrambler and an error detector. The presettable scrambler includes an input connected to the seed payload field source and an output coupled to a data transmission medium. The presettable 15 scrambler is presettable to a preset state. The presettable descrambler includes an input coupled to the transmission medium and an output. The error detector includes an input connected to the output of the presettable descrambler, and operates to generate an error indication when a recovered test sequence field output by the presettable descrambler differs from the seed 20 payload field.